Guardian

America's First Choice for Environmental Restoration

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Inside

Photo by Kevin Jackson

Finishing touch: A backhoe operator digs the trench connecting the final extraction well to the well field encapsulating the contaminated groundwater plume that has migrated beyond the base boundary.

Full plume capture

Extraction wells contain contaminants migrating beyond base boundary

By Kevin Jackson
Community Relations Coordinator

Installing an extraction well at the base's highest priority restoration site has enabled the Air Force to contain a contaminated groundwater plume and halt its migration, according to Mark Sandy, remedial project manager for the site.

The final well connects to the existing well network via a 250-foot pipeline, encapsulating the plume that has migrated beyond the base's south boundary. The latest addition to the extraction system has been operating since Sept. 6.

Groundwater contamination was detected during the remedial investigation of the area located in the south base boundary of the East Industrial Operable Unit, adjacent to a communications equipment maintenance facility.

Contamination at site SS030 consists of chlorinated solvents, primarily trichloroethylene, which was commonly used for cleaning and degreasing operations before 1980.

Air Force environmental officials initially estimated that the plume extended 500 feet beyond the south base boundary. It had migrated 1,700 feet off base by the time it was contained in June, Sandy said.

"The groundwater contamination moved faster than we thought it would," he said. "Subsurface geological conditions immediately off base vary from those typically found on base. The contaminated plume was migrating toward the landowner's drinking water well. We weren't going to be satisfied until we achieved full plume capture."

Construction began in late 1997 after the landowner was notified and contracts were negotiated. The Air Force initially dug a 220-foot interceptor trench down to the bedrock, across the length of the plume, and along the south base boundary to prevent further migration.

The well network consists of seven

CAPTURE continued on page 8

Guardian
Travis Air Force Base, California

The *Guardian* is a publication of the 60th Civil Engineer Squadron's Installation Restoration Program (IRP). The newsletter is designed to inform and educate the public about the base's ongoing environmental cleanup program. Contents expressed herein are not necessarily the official views of, or endorsed by, the U.S. government, the Department of Defense, or the Department of the Air Force. Additional information about the program can be obtained from the public website at *http://www.travis.af.mil/pages/enviro*. Questions and comments about the environmental cleanup program should be addressed to:

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CERCLA ensures safe cleanup

Viewpoint

Kevin Neurer
Environmental Attorney

In today's environmental climate, many laws require businesses, government agencies, and even private citizens to obtain permission from the government before conducting or initiating actions that potentially impact the environment. Regulatory agencies responsible for protecting the air, the water, and land review each action to ensure compliance with the numerous federal, state, and local environmental laws. This review is achieved through the permitting process.

Through active permitting programs and enforcement, government agencies can prevent many actions that would not comply with environmental laws or that would otherwise be harmful to human health and the environment.

For example, if a California community decided to build a new sewage treatment plant that discharges treated wastewater into a river or lake or other surface water, the community must receive a permit from the regional water board before it can legally discharge. Similarly, if an industrial facility decides to build a new boiler for the production of steam, the local air district must authorize or "permit" the construction and operation of the new source to ensure compliance with air requirements. And when the local home builder plans a new housing development, it must receive a permit from the U.S. Army Corps of Engineers to ensure protection and mitigation of on-site wetland resources.

So with the presence of these numerous environmental permitting requirements, why then does Travis AFB not obtain permits for it's remedial actions? The answer is found in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - the federal law that provides the mechanism and procedure for the safe, expeditious and cost-effective cleanup of our nation's most contaminated sites.

The primary congressional intent behind the exclusion is to expedite cleanup actions by avoiding inherent delays that result from the numerous permitting processes that exist. Obtaining necessary permits can often take months or years. Consequently, Congress waived the application of all federal, state, and local permitting requirements imposed by the numerous environmental regulatory agencies and replaced them with CERCLA-authorized procedures.

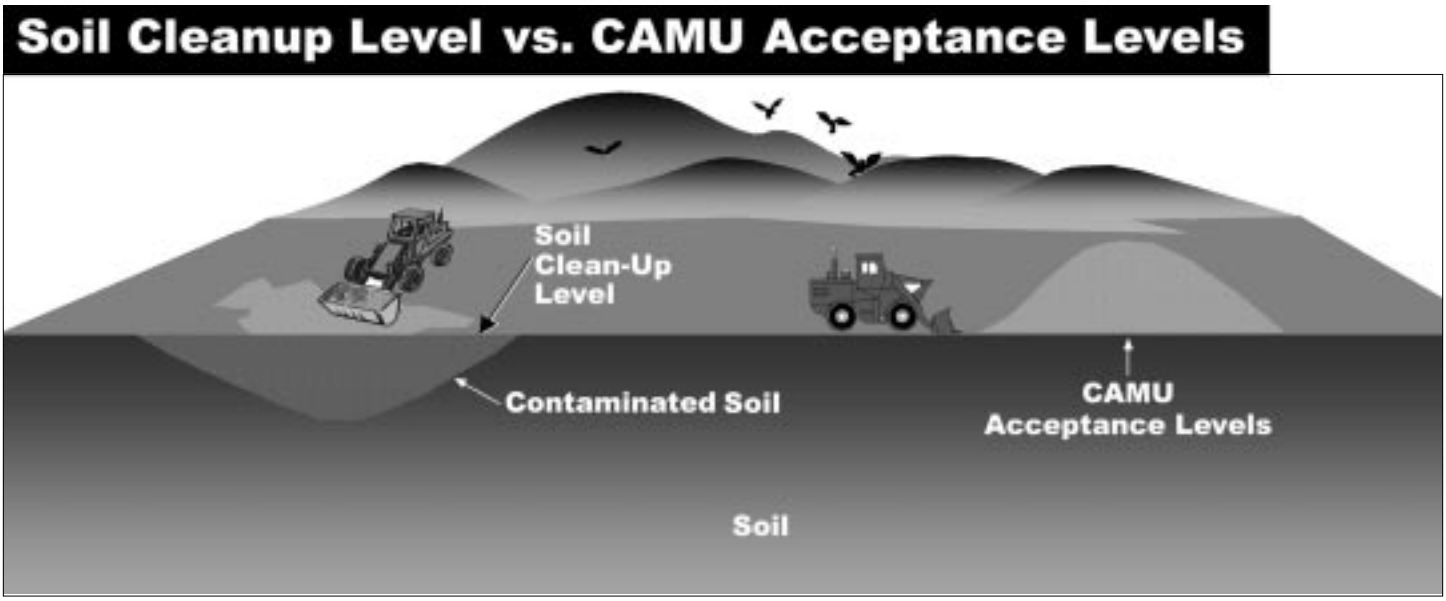
These permit-equivalent CERCLA procedures provide federal, state, and local regulators with an opportunity to take an active role in the remedial action process by identifing those requirements that would be included in a permit. By following the CERCLA process, the Air Force and regulatory communities guarantee compliance with applicable environmental laws and ensure protection of the environment at remedial sites.

The application of many CERCLA "permit waivers" can already be seen on base. For example, at groundwater restoration sites, discharges of treated groundwater to Union Creek from treatment plants meet all applicable or relevant discharge standards. These standards, which are incorporated as part of the remedial action, ensure continued compliance with requisite water-protective laws.

In the near future, the incorporation of wetland-protective laws into soil remediation sites will eliminate delays otherwise encountered during the wetlands permitting processes, while still ensuring the protection of impacted wetlands.

Regulatory Roundtable

The *Regulatory Roundtable* column that normally appears on page 3 of the *Guardian* did not arrive in our office prior to press time. The column, which is rotated among the San Francisco Regional Water Quality Control Board, the California Department of Toxic Substances Control, and the U.S. Environmental Protection Agency, will appear in the January newsletter.



(CH2M Hill graphic)

Contaminated soil will be excavated and transported to the corrective action management unit for safe on-base containment.

Air Force focuses on cleanup levels

Corrective action management unit to hold contamination

By Dale Malsberger
NEWIOU Remedial Project Manager

With more than 95 percent of all groundwater cleanup systems installed and operating, the base is now turning its attention to the remediation of contaminated soil.

Possible cleanup actions for contaminated soil have already been evaluated. The proposed action at most sites is to excavate the contaminated soil and transport it to a landfill.

Before the Air Force excavates any of the contaminated soil, it must first establish cleanup levels. A cleanup level is a pre-determined numeric value for each contaminant at a site.

Cleanup levels are currently being negotiated with the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, and the San Francisco Bay Regional Water Quality Control Board. Once all parties agree to the cleanup levels, they will be documented in a legally-binding record of decision (ROD).

Using available information about contamination at the site and the newly established cleanup levels, base environmental engineers will develop a target volume. The target volume is the best estimate of the location and amount of soil that must be excavated to remove all of the soil that exceeds cleanup levels.

Confirmation samples will be collected following the initial excavation. Excavation will continue until the cleanup levels have been met and then the area is backfilled with clean soil.

Once excavation is complete, contaminated soil would typically be transported to an approved commercial landfill. Base environmental officials instead propose placing some soil in a corrective action management unit (CAMU) at the old on-base landfill.

A CAMU is a landfill that is designed to safely contain contaminated soil. Consolidating the excavated soil into an on-base CAMU provides needed material for required capping at the old landfill.

Using a CAMU will also keep a large quantity of soil on the base and extend the useful life of the off-base commercial landfill. The CAMU would also result in significant cost-savings, which will enable the base to complete its cleanup actions earlier, according to Allen Brickeen, base remedial program manager.

"The CAMU is a very important part of our restoration plan," Brickeen said. "It's a regulatory tool that is protective of human health and the environment, but it will also expedite the cleanup process through on-site management of wastes."

Base restoration staff is currently working with the regulatory agencies to finalize the CAMU concept and to determine contaminated soil acceptance levels. An acceptance level is a safe numerical value for each contaminant that is placed in the CAMU.

Excavated soil placed in a management unit is buried beneath several feet of clean soil to avoid exposure to the contamination.

To further protect human health on the base, institutional controls will restrict access and future use of the site, and require the landfill's protective cap to be maintained.

Acceptance levels, which will be documented in the RODs, also consider the potential migration of contaminants to underlying groundwater and are set at levels to be protective of the environment.

Sampling will continue at the CAMU after it is capped to ensure that groundwater contamination and migration do not occur. Excavated soil that fails to meet the acceptance levels will transported to an approved off-base landfill.

Malsberger is the remedial project manager for the North/East/West Industrial Operable Unit, which includes numerous soil contamination sites.

Innovative technologies

Air Force turns to Mother Nature for remedial cures

By Glenn Anderson
WABOU Remedial Project Manager

Better, faster and cheaper isn't hyperbole in today's world of evolving technologies. It's a necessity.

During the past two years, the base has been a testing ground for several promising, innovative groundwater treatment technologies. These innovative restoration technologies are the result of shrinking budgets.

Restoration project managers have known for several years that the old, reliable method of groundwater cleanup, known as pump-and-treat, is effective early in the cleanup process. However, it is slow and often fails to achieve cleanup milestones in a timely manner.

"Treatability studies are a great way to identify the most effective and cost-efficient cleanup methods," said Allen Brickeen, base remedial program manager. "AFCEE provides us with the funding and program management, and we provide the test sites."

The Air Force Center for Environmental Excellence's (AFCEE) Technology Transfer Division has been promoting innovative technologies since 1992. The division evaluates, tests and applies new, emerging and unique restoration technologies for the Department of Defense.

Five treatability studies are currently being conducted on base:

- A risk management study is being conducted at the Former Small Arms Range (SD045) in the West/Annexes/Basewide Operable Unit. It is collecting site-specific data needed to make soil cleanup decisions at small arms ranges commonly found on military installations.
- Dual-phase extraction technology attempts to remove pure solvents from the subsurface. It lowers the water table to expose the solvents to air, and then vacuums the volatile solvents out of the subsurface. To date, the innovative technology has effectively removed more than 480 pounds of Trichloroethylene from the groundwater at the Building 755 Battery and Electric Shop (DP039).
- A permeable reactive treatment wall installed at DP039 in June 1999 placed iron filings into the subsurface. The iron serves as a reactive zone, chemically breaking down the solvent contaminants as they pass through the wall.
- Phytostabilization is the third treatability study being conducted at DP039. It involves the planting of 380 water-loving, red bark eucalyptus trees above a contaminated groundwater plume. The trees act as Mother Nature's groundwater treatment system, drawing the solvents out of the contaminated groundwater.
- The newest innovative technology being evaluated on base injected common household vegetable oil into the groundwater at the Solvent Spill Area (SS015). The oil acts as a food source for microbes that multiply and feed on the groundwater contaminants.

Once the treatability studies are completed, the base will evaluate which of the innovative technologies can be successfully integrated into the cleanup program.

Glenn Anderson is the project manager for the West/Annexes/Basewide Operable Unit, which includes the Building 755 Battery and Electric Shop (DP039).

Green thumb: A contractor plants one of the 380 red bark eucalyptus trees that the Air Force hopes will draw solvents out of contaminated groundwater at DP039.

FROM THE FIELD

Building 755 Battery and Electric Shop (DP039): Trenches were excavated between the site and the West Treatment and Transfer Plant, and a pipeline now connects the dual-phase extraction system to the Central Groundwater Treatment Plant (CGWTP). System performance tests are in progress.

DP039 Phytostabilization Treatability Study: AFCEE increased the size of the study area, adding 380 new red-bark eucalyptus trees and expanding the irrigation system to support them while the roots are growing toward the contaminated groundwater beneath the site.

Landfill #3 (LF008): A groundwater extraction system that will remove pesticide-contaminated groundwater from beneath trenches containing old pesticide containers is nearly complete. A pipeline to support the extraction system, which runs to the CGWTP, will soon be connected to the groundwater transfer system at DP039.

Cypress Lakes Golf Course Annex (SS041): The removal action involving pesticide-contaminated soil is almost complete. The contaminated soil was sent to an appropriate off-base landfill. Excavated areas will be filled in after the results of the confirmation sampling are received. Cleanup at the small soil site was requested by the RAB.

North Groundwater Treatment Plant: Since the NGTP began operating in Feburary, it has treated more than 4.3 million gallons of contaminated groundwater from Fire Training Area #3 (FT004) and the Maintenance Facility 1205 (SD031). It has also removed more than 36 pounds of volatile organic compounds.

Photo by Kevin Jackson

Clean bill of health: Carl Stoltz (left) from Air Mobility Command and Travis AFB remedial project manager Allen Brickeen examine the condition of a red bark eucalyptus tree at the photoremediation site in the West/Annexes/Basewide Operable Unit.

AMC staff assistance visit cites program challenges

By Kevin Jackson
Community Relations Coordinator

Funding reductions have had a major impact on the base's ability to meet scheduled cleanup milestones, according a report issued by Headquarters, Air Mobility Command, in August

During the visit, AMC examined the Installation Restoration Program (IRP) for compliance to federal, state, local, Department of Defense, and Air Force laws and regulations, and made these observations:

❏ The IRP is in compliance with existing legal agreements and will continue to maintain the highest degree of vigilance. However, cleanup of high relative risk sites is falling behind schedule due to funding reductions triggered by AMC's increasing restoration requirements. *Proposed action:* Develop a strategy to fund the cleanup of high-risk sites before Sept. 2007.

❏ There has been very little senior leadership presence at quarterly Restoration Advisory Board meetings in the past three years. *Proposed action:* A colonel, preferably the base Environmental Protection Committee chairperson, should assume the duties of RAB co-chair.

❏ Drill rig waivers are required to install wells near the runway, but take up to 90 days to obtain. *Proposed action:* Obtain required FAA waivers for areas allowing slight movement of drilling rigs without reapplication.

❏ Three petroleum sites are cleaned up and awaiting site closeout concurrence from the San Francisco Bay Regional Water Quality Control Board. *Proposed action:* Obtain approval for closeout.

❏ Restoration manning provides a lawyer, public affairs specialist, a hydrologist, five environmental engineers, an environmental specialist, and an administrative specialist. *Corrective action:* Realign the excess environmental engineer position when it becomes vacant so it can be redistributed within the AMC.

❏ Periodic groundwater monitoring and treatment operations cost $2 million and will increase to $3 million annually as additional treatment occurs. *Corrective action:* Continue the aggressive efforts to evaluate optimization alternatives and work with the regulatory agencies to seek ways to reduce the annual requirement. Savings can be diverted to cleanup other sites.

Regulator Profile

Name: Sarah Raker
Age: 43 years old
Position: Project manager, San Francisco Bay Regional Water Quality Control Board, Oakland, Calif.
Hobbies: Hiking, skiing, outdoor activities

Water board taps base representatives

The San Francisco Bay Regional Water Quality Control Board recently assigned Sarah Raker and Claudia Villacorta to provide oversight for the base's environmental cleanup program.

Raker is responsible for West/Annexes/Basewide Operable Unit soil and groundwater sites, including the Potrero Hills Annex and the Cypress Lakes Golf Course Annex.

"I really enjoy working with the staff at Travis AFB," she said. "I'm also fascinated by the AFCEE (Air Force Center for Environmental Excellence) treatability studies that are being conducted on the base."

The Oakland resident has more than 15 years of environmental experience. Prior to joining the Water Board in June, she spent the past four years working as a project manager for Levine Fricke in Emeryville, Calif., where she was responsible for private Superfund cleanup sites.

Other federal projects she is working on are the Hunter's Point Naval Station and the Treasure Island Naval Station, both are located in metropolitan San Francisco and have been closed for many years.

Raker holds a master's degree in geology from the University of Neveda at Reno and a bachelor's degree from San Diego State University.

Raker and Villacorta replace Brad Job, who worked on the base for one year.

Villacorta will be profiled in the January issue of the GUARDIAN.

Recruitment boosts RAB membership

Community members answer call to civic duty

By Kevin Jackson
Community Relations Coordinator

Twelve new members joined the Restoration Advisory Board at its quarterly meeting in July.

Membership had declined from its peak of 20 when the RAB was formed in December 1994 to eight community members this summer. The recent additions boost membership back to 20.

"We're very pleased with our new members and the wealth of experience they bring to our RAB," said Allen Brickeen, the base's remedial project manager and the RAB Air Force co-chair.

"They represent the environment, finance, real estate, healthcare, engineering, media, the church and more. The most important quality they bring to our board, is a concern for the environment and the desire to make a difference in their communities."

David Child is the owner of Child Environmental in Fairfield. He has lived in Fairfield for more than 20 years, and is a member of the National Rifle Association. David is the vice president of Tolenas Farms Association and has worked with the California Trucking Association for many years. He joined the RAB because of his extensive environmental experience and his interest in the base.

With her children in school, **Anne D'Lima** is pursuing a career as an environmental consultant. The former government employee currently resides on base, where she is a member of the Officers Wives Club. Anne joined the RAB because of her interest in the environment and her desire to ensure that Travis AFB is a safe place to live.

A retired C-141 pilot, **John Foster** is a property manager for Prudential California Realty in Fairfield. He has lived in Fairfield since 1988, and is a member of the Northern Solano County Association of Realtors, where he is the Legislative Committee chairman. He is interested in environmental issues and joined the RAB to serve his community.

Timothy Guido is a public health nurse and teacher, who works as a registered nurse at David Grant Medical Center on base. He has lived in Vacaville for 6 years, and has volunteered for the Red Cross Disaster Action Team and the Solano County Food Bank in the past. He joined the RAB to serve his community and ensure a high quality of life for military and civilian residents in the area.

As a civil/airfield engineer for the 60th Civil Engineer Squadron on base, **Cyrus Morad** is familiar with the Air Force's environmental program. The 15-year Fairfield resident is pursuing a doctorate degree at the University of California at Berkeley in his spare time. Cyrus is knowledgeable of environmental regulations, and volunteered to serve on the RAB to help his community.

Michael Moseley is an author, poet and writer. He is the Daily Republic liaison to the base newspaper, the *Tailwind*. Michael has lived in Suisun City for one year, and is a member of the Apache nation and the International Brotherhood of Magicians. He was a docent guide at Jepson Prairie Preserve this past year, and is concerned about possible negative impacts on the local environment.

Committed to the service of others, **David Root** is the pastor of the Crosswinds Church in Suisun City and a chaplain for the U.S. Army Reserve. He has lived in Suisun City for 2 years, and is a volunteer chaplain for the Suisun City Police Department. Pastor Root joined the RAB to make a contribution to his community and to future generations that will live in the area.

Ron Tolentino is a safety and compliance officer for the Solano Garbage Company in Fairfield. He has lived in Suisun City since 1989, and is a member of the Associated Students of Solano College and the Solano College Judo Club. Ron is a volunteer for the California Department of Transportation's Adopt-A-Highway program. He believes it is his civic duty to be a proactive RAB participant.

Cleanup issues at Potrero Hills Annex may be more easily resolved with **Kurt Urquhart** serving on the RAB. He is the director of safety, health, environmental, facility engineering and plant maintenance for OEA Aerospace, which leases the annex from the Air Force. Kurt has lived in Suisun City for one and a half years, and is a former project manager for the 30th Space Wing at Vandenberg AFB, Calif. He joined the RAB because of his interest in environmental issues.

Remaining new members Joel Corona, MSgt. Daniel Negron and Kathy Sawyer-Shishido could not attend the July meeting. They will be profiled in the January issue of the GUARDIAN.

Travis AFB
Restoration Advisory Board
Meeting Agenda
October 19, 2000

Fairfield Senior Center
1200 Civic Center Drive
Fairfield, California

6:30 - 7:00 p.m. Poster Session:
The poster session allows RAB and community members to view posterboards about ongoing Travis AFB restoration program activities. It also allows the public the opportunity to discuss the program with Travis Environmental Management Restoration Staff on a one-to-one basis.

7:00 - 9:00 p.m. RAB General Meeting

I. Welcome and Introductions

II. Approval of Minutes

III. Additional Agenda Items and Questions

IV. Discussion Topics
- AFCEE Innovative Technologies
- Potrero Hills Annex

Break

V. Cleanup Program Status
- Petroleum Site Closeouts
- Off-Base Contamination
- West/Annexes/Basewide Operable Unit Soil Record of Decision
- Budget Issues
- Cypress Lakes Golf Course Annex Removal Action

VI. Regulatory Agency Reports

VII. Focus Group Reports

VIII. RAB/Public Questions

IX. Set Time and Place for Next RAB Meeting

Adjourn

X. Set Focus Group Meeting Times

XI. RAB Meeting Debrief Topics for Next Meeting

CAPTURE continued from page 1

extraction wells that enable the Air Force to encapsulate the plume. The groundwater is currently being pumped back to the South Base Boundary Groundwater Treatment Plant at 50 gallons per minute.

At the plant, the contaminated groundwater is treated in 6,000-pound vessels containing liquid phase granulated activated carbon. Once the process is complete, the treated water meets drinking water standards and is discharged into Union Creek or returned to the landowner for agricultural use.

Restoration of the 20-acre plume will take a many years, but Sandy believes new technologies may expedite the cleanup.

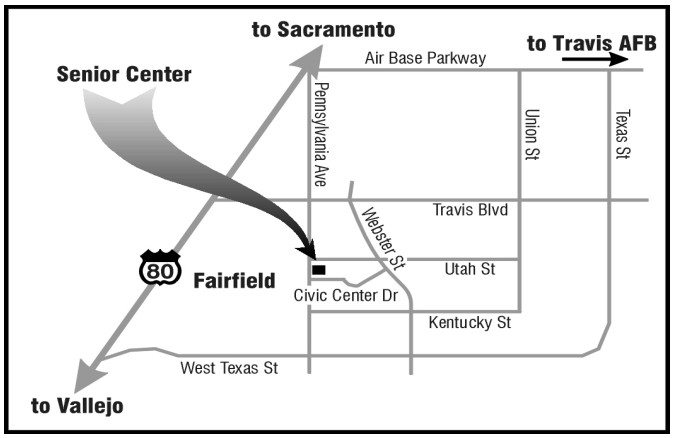
"This is an exciting time for environmental science because a lot of advances are being made," he said. "We currently estimate that it will take up to 77 years, but that may change as new technologies emerge."

Contaminated groundwater at SS030 will continue to be pumped back to the base for treatment. The encapsulated plume no longer poses a threat to the landowner's water supply.

Travis AFB Restoration Advisory Board Meeting

October 19, 2000
7 p.m.

Fairfield Senior Center
1200 Civic Center Drive
Fairfield, CA



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1020 Ulatis Drive
Vacaville, CA 95688

(707) 449-6290

Monday-Thursday: 10 a.m. - 9 p.m.
Friday-Saturday: 10 a.m. - 5 p.m.
Sunday: 1 p.m. - 5 p.m.

Fairfield-Suisun Com. Library
1150 Kentucky Street
Fairfield, CA 94533

(707) 421-6500

Monday-Thursday: 10 a.m. - 9 p.m.
Friday-Saturday: 10 a.m. - 5 p.m.
Sunday: 1 p.m. - 5 p.m.

Mitchell Memorial Library
510 Travis Boulevard
Travis AFB, CA 94535

(707) 424-3279

Monday-Thursday: 10 a.m. - 9 p.m.
Friday: 10 a.m. - 6 p.m.
Saturday: Closed
Sunday: 12 p.m. - 6 p.m.

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